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10/585,938	07/13/2006	Yasunori Uetani	Q95909	1171

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EXAMINER
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YAMNITZKY, MARIE ROSE

ART UNIT	PAPER NUMBER
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1794

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09/23/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/585,938	<b>Applicant(s)</b> UETANI ET AL.	
	<b>Examiner</b> Marie R. Yamnitzky	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>13 July 2006</u>  | 6) <input type="checkbox"/> Other: _____                          |

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1. The preliminary amendment filed July 13, 2006, which amends claims 1, 5, 6 and 8-13, has been entered.

Claim 1 as set forth in the preliminary amendment includes underlining that is part of the originally claimed subject matter (in the relationship  $0 \leq a+b \leq 1$ ) as well as underlining that indicates changes to the claim. Any response to this action should include a complete listing of claims. If no amendment is made to claim 1, the complete listing of claims should include a clean copy of claim 1. If further amendment is to be made to claim 1, claim 1 should be cancelled and rewritten as a new claim.

2. The information disclosure statement filed July 13, 2006 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

US 6,630,566 B1, which is listed in the Search Report as being in the same patent family as "X" document JP 2001-527102, has been considered by the examiner and is made of record via the PTO-892 accompanying this Office action.

3. Claims 9-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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There is no antecedent basis for “the molecule” as recited in the last line of claim 9. It is not clear if the at least one polymerizable substituent must be present in the repeating unit of formula (1), or if it is sufficient for the at least one polymerizable substituent to be present in the polymer compound as a whole.

Claims 10 and 11 recite “using” but do not specify how the device according to claim 1 or 2 is used in the light source of claim 10 or in the display of claim 11. (For purposes of comparing to the prior art, the examiner interprets “using” as recited in claims 10 and 11 as meaning --comprising--.)

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-13 are rejected under 35 U.S.C. 102(a) or 35 U.S.C. 102(e) as being anticipated by Kitano et al. (US 2004/0109955 A1).

Applicant cannot rely upon the foreign priority papers to overcome the rejection under 35 U.S.C. 102(a) because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

The applied reference has a common inventor with the instant application, but a different inventive entity. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). The rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

See the entire patent application publication. In particular, see paragraphs [0010]-[0013], [0064]-[0092], [0123]-[0124], [0186]-[0191], [0211]-[0216] and [0240]-[0254], and the claims.

Kitano et al. disclose and claim polymers within the scope of those required for the organic electroluminescence device of present claims 1-9. Kitano et al. also disclose and claim a light emitting device comprising such a polymer in a layer between an anode and a cathode, and disclose and claim a flat light source, a segment display, a dot-matrix display and a liquid crystal display comprising the light emitting device. While Kitano et al. teach a preference for using the polymer in the light emitting layer of the light emitting device, Kitano et al. specifically teach in paragraph [0191] that the polymer may be used in the hole transporting layer. Kitano et al. disclose various multilayered device structures having a hole transporting layer between the light emitting layer and the anode, thus anticipating the subject matter of the present claims.

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6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-8 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kreuder et al. (US 5,814,244).

See the whole patent. In particular, see column 2, line 8-c. 6, l. 50 (especially the two formulae at c. 6, l. 25-31), and c. 17, l. 53-c. 18, l. 29.

Kreuder et al. provide for polymers comprising a repeating unit of present formula (1) wherein a is 0 and b is 0 (when “n” of Kreuder’s formula (I) structure is 0), or wherein a is 1 and b is 0 (when “n” of Kreuder’s formula (I) structure is 1). As taught at c. 2, l. 38, “n” of Kreuder’s formula (I) structure is “0, 1 or 2, preferably 0 or 1, particularly preferably 0.”

Kreuder et al. teach the two formulae at c. 6, l. 25-31, as possibilities for Ar<sup>2</sup> and Ar<sup>4</sup>. Ar<sup>2</sup> is at the position corresponding to E<sub>3</sub> of present formula 1, and Ar<sup>4</sup> is at the position corresponding to E<sub>1</sub> of present formula 1. The first formula at c. 6, l. 25-31 is a monovalent heterocyclic group having four fluoro (halogen atom) substituents and is within the scope of heterocyclic group (B) as defined in present claim 1. The second formula at c. 6, l. 25-31 is an aryl group having five fluoro (halogen atom) substituents and is within the scope of aryl group (A) as defined in present claim 1.

Kreuder et al. teach that in multilayer structures, the polymer “is particularly suitable as one of the components of the hole-conductor layer” (c. 2, l. 43-45). As taught at c. 17, l. 53-c. 18, l. 4, an electroluminescence device according to Kreuder’s invention has at least one active layer comprising at least one of Kreuder’s polymers, and the device may comprise one or more hole-injection and/or hole-transport layers between the electroluminescing layer and the anode.

Kreuder et al. do not disclose a specified example of a polymer within the scope of the polymer required for the present claims. It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to make various polymers within the scope of Kreuder’s formula (I), such as polymers in which  $n$  is 0 and  $Ar^2$  is either of the two formulae at c. 6, l. 25-31, or polymers in which  $n$  is 1 and each of  $Ar^2$  and  $Ar^4$  is either of the two formulae at c. 6, l. 25-31. Polymers according to Kreuder’s formula (I) in which  $n$  is 0 and  $Ar^2$  is either of the two formulae at c. 6, l. 25-31, or in which  $n$  is 1 and each of  $Ar^2$  and  $Ar^4$  is either of the two formulae at c. 6, l. 25-31, are polymers comprising a repeating unit of formula (1) as required for the organic electroluminescence device of present claim 1, with claims 2-5, 8 and 10-13 dependent therefrom.

Present claim 5 further defines aryl group (A) but is not limited to a device in which the polymer compound comprises aryl group (A). Even if it did, the substituted aryl group represented by the second formula at c. 6, l. 25-31, of the Kreuder patent is a phenyl group having five substituents as within the scope of aryl group (A) as further defined by claim 5.

Present claims 6 and 7 further define aryl group (A) but are not limited to a device in which the polymer compound comprises aryl group (A). While the substituted aryl group

represented by the second formula at c. 6, l. 25-31, of the Kreuder patent does not meet the limitations of aryl group (A) per claims 6 and 7, the substituted heteroaryl group represented by the first formula at c. 6, l. 25-31, meets the limitations of heterocyclic group (B). Kreuder's polymers of formula (I) in which n is 0 or 1, and  $Ar^2$  (and  $Ar^4$  if present) is a group represented by the first formula at c. 6, l. 25-31, meet the limitations of the polymer required for the device of claims 6 and 7 since aryl group (A) is not required for the polymer.

With respect to present claim 8, Kreuder's formula (I) provides for copolymers comprising a repeating unit of present formula (1) and a repeating unit of present formula (4), (6) or (7) wherein  $Ar_{12}$  represents an arylene group or a divalent heterocyclic group, and  $X_2$  represents  $-CR_2=CR_3-$ .

With respect to the device structure of the present claims, which requires the polymer comprising the formula (1) repeating unit to be in a layer between the light emitting layer and the anode, this device structure would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention given Kreuder's teachings, especially the teachings at c. 2, l. 43-45, and c. 17, l. 53-c. 18, l. 4.

With respect to present claims 10-13, see c. 18, l. 25-29, for example. It was known in the art at the time of the invention to incorporate EL devices into displays such as claimed in present claims 11-13. It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to incorporate an EL device according to Kreuder et al. into types of displays in which EL devices were known to be useful at the time of the invention.

8. Claims 1-6 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. (US 6,034,206).

See the whole patent. In particular, see column 3, line 52-c. 4, l. 33 and c. 9, l. 39-43.

In column 4, Yamamoto et al. teach 2,4,6-trimethylaniline, 3,4,5-trifluoroaniline, 2,3,4,5-tetrafluoroaniline and 2,3,4,5,6-pentafluoroaniline as exemplary aniline derivative residues. Polyaryleneamines according to Yamamoto's formula (3) or formula (7) wherein the aniline derivative residue is any of 2,4,6-trimethylaniline, 3,4,5-trifluoroaniline, 2,3,4,5-tetrafluoroaniline or 2,3,4,5,6-pentafluoroaniline are polymers comprising a repeating unit of formula (1) as defined in present claim 1 wherein each of a and b is 0, each of Ar<sub>1</sub> and Ar<sub>3</sub> is an arylene group, and E<sub>3</sub> is an aryl group having three or more substituents selected from alkyl groups and halogen atoms. Such polymers further meet the limitations of the polymer required for the device of present claim 5, and the polymers wherein the aniline derivative residue is 2,4,6-trimethylaniline further meet the limitations of the polymer required for the device of present claim 6.

With respect to the device structure of the present claims, which requires the polymer comprising the formula (1) repeating unit to be in a layer between the light emitting layer and the anode, this device structure would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention given Yamamoto's teachings that the polymers are capable of efficient positive hole transport and hold promise for use as a positive hole transport material in organic electroluminescent (EL) devices (c. 9, l. 39-43). An organic EL device conventionally comprises at least one organic layer between an anode and a cathode. Organic EL device

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structures including one or more organic layers which function as hole-injecting and/or hole-transporting layers between the anode and the luminescent layer were well-known in the art at the time of the invention. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Yamamoto's polymer into a hole-injecting and/or hole-transporting layer in a multilayered EL device structure having at least one hole-injecting and/or hole-transporting layer between the anode and the luminescent layer.

With respect to present claims 10-13, it was known in the art at the time of the invention to use EL devices as light sources and to incorporate EL devices into displays such as claimed in present claims 11-13. It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to incorporate an EL device comprising Yamamoto's polyaryleneamine into types of displays in which EL devices were known to be useful at the time of the invention.

9. Claims 1-7 and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al. (US 6,630,566 B1).

Allen et al. encompass polymers as required for the device of present claim 1, with claims 6-7 and 9-13 dependent therefrom, and teach that the polymers may be used as charge transport materials in electroluminescent devices. For example, see column 1, lines 5-10, c. 1, l. 65-c. 2, l. 4, c. 11, l. 66-c. 14, l. 65, c. 16, l. 44-c.17, l. 4, c. 19, l. 53-64, and c. 24, l. 10-18.

Allen's preferred polymeric material represented by Formula 3 as defined in c. 16-17 encompasses polymers comprising a repeating unit of present formula (1) wherein each of a and

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b is 0, each of Ar<sub>1</sub> and Ar<sub>3</sub> is an arylene group, and E<sub>3</sub> is an aryl group (specifically, a phenyl group). While Allen et al. do not require the phenyl group at the position corresponding to E<sub>3</sub> of present formula (1) to have three or more substituents, the phenyl group may have three or more substituents, and alkyl groups having 1-15 carbon atoms are specifically taught for the substituent R<sup>6</sup> of Allen's Formula 3. Absent a showing of unexpected results commensurate in scope with the claims, it is the examiner's position that it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to make various polymeric materials represented by Allen's Formula 3, including polymeric materials according to Formula 3 in which the phenyl group at the position corresponding to present E<sub>3</sub> is substituted with three or more substituents such as three or more alkyl groups. It would have been within the level of ordinary skill of a worker in the art at the time of the invention to make various polymers within the scope of Allen's Formula 3, and one of ordinary skill in the art at the time of the invention would have reasonably expected that polymers of Allen's Formula 3 having alkyl-substituted phenyl groups would be charge-transporting and could be used for the purposes taught by Allen et al.

With respect to the device structure of the present claims, which requires the polymer comprising the formula (1) repeating unit to be in a layer between the light emitting layer and the anode, this device structure would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention given Allen's teachings that the polymers are charge transport materials and can be used in a multi-layer EL device structure (e.g. see c. 24, l. 10-18). An organic EL device conventionally comprises at least one organic layer between an anode and a

cathode. Organic EL device structures including one or more organic layers which function as hole-injecting and/or hole-transporting layers between the anode and the luminescent layer were well-known in the art at the time of the invention. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Allen's polymer into a hole-injecting and/or hole-transporting layer in a multilayered EL device structure having at least one hole-injecting and/or hole-transporting layer between the anode and the luminescent layer.

With respect to present claims 10-13, it was known in the art at the time of the invention to use EL devices as light sources and to incorporate EL devices into displays such as claimed in present claims 11-13. It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to incorporate an EL device comprising Allen's charge transporting polymer into types of displays in which EL devices were known to be useful at the time of the invention.

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 1-13 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3, 4, 10, 11, 16-18 and 21-24 of copending Application No. 10/647,454. Although the conflicting claims are not identical, they are not patentably distinct from each other. Polymers within the scope of the polymer compound required for the organic electroluminescence device of present claims 1- 9 are claimed in the copending application, as is a polymer light-emitting device comprising a layer containing the polymer, wherein the layer is disposed between an anode and a cathode. The copending claims also include claims to a flat light source comprising the polymer light-emitting device, a segment display apparatus comprising the polymer light-emitting device, a dot-matrix display apparatus comprising the polymer light-emitting device, and a liquid crystal display comprising the light-emitting device as a back light.

The function of the layer comprising the polymer within the scope of the polymer required by the present claims is not limited for the polymer light-emitting device of copending claim 18 with copending claims 21-24 dependent therefrom. While the copending claims do not require the polymer to be in a layer between a light emitting layer and the anode as in the

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present claims, the device of copending claim 18, with claims 21-24 dependent therefrom, encompasses the device structure of the present claims. It was well-known in the art at the time of the invention to use amines in a hole-injecting and/or transporting layer positioned between an anode and a light emitting layer in a multilayered organic EL device structure. It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to make an EL device having at least one hole-injecting and/or transporting layer between the anode and the light emitting layer, and to incorporate an amine polymer according to the copending claims into a hole-injecting and/or transporting layer.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

12. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (571) 272-1531. The examiner works a flexible schedule but can generally be reached at this number from 7:00 a.m. to 3:30 p.m. Monday and Wednesday-Friday.

The current fax number for all official faxes is (571) 273-8300. (Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (571) 273-1531.)

/Marie R. Yamnitzky/  
Primary Examiner, Art Unit 1794

MRY  
September 22, 2009